ABSTRACT OF THE DISCLOSURE

The invention provides a cerium based composite oxide and its production method, which hardly forms aggregates, is composed of particular acicular particles providing sinterable ceramic materials, has a sharp particle size distribution, and inhibited from aggregating. The composite oxide contains 0.1-50 mol% of metal such as Y, Sc, or rare earth elements excluding Ce and Pm, in terms of oxides, and 50 to 99.9 mol% of cerium in terms of oxides, wherein the composite oxide takes the acicular primary particle form having an average aspect ratio of 1.05-10.0, or secondary particle form, aggregates of the primary particles. The composite oxide containing the primary and second particles have a BET specific surface area of 5 to 40 m^2/g, an average particle size of 0.1 to 0.5 μm, and a particle size distribution index represented by formula (1) of not higher than 1.6:

Particle Size Distribution Index

$= (D84-D16)/(2\times D50)$ ...(1).